

Amendment and Response

Applicant: Robert-Christian Hagen et al.

Serial No.: 10/598,483

Filed: August 7, 2008

Docket No.: I431.175.101/FIN592PCT/US

Title: BASE SEMICONDUCTOR COMPONENT FOR A SEMICONDUCTOR COMPONENT STACK AND METHOD FOR THE PRODUCTION THEREOF

IN THE CLAIMS

Please amend claims 15-34 as follows:

1.-14. (Cancelled)

15. (Currently Amended) A base semiconductor component for a semiconductor component stack comprising:

a semiconductor chip arranged on a stiff wiring substrate, ~~wherein an active upper side of the semiconductor chip faces toward the wiring substrate,~~ the wiring substrate having contact pads on its upper side in edge regions and external contacts of the base semiconductor component on its underside opposite to the semiconductor chip;

contact areas of an integrated circuit of the active upper side of the semiconductor chip, ~~and/or the external contacts together with,~~ and the contact pads are electrically connected to one another via wiring lines ~~and/or~~ through contacts of the wiring substrate;

a deformable interconnection film defines ~~the an~~ upper side of the base semiconductor component and has a freely accessible arrangement pattern of stack contact areas arranged congruently with respect to external contacts of a semiconductor component to be stacked;

the interconnection film is deformed in its edge regions toward the contact pads of the wiring substrate; and

the stack contact areas are electrically connected to the contact pads of the wiring substrate via conductor tracks of the interconnection film.

16. (Currently Amended) The base semiconductor component ~~as claimed in~~ claim 15, ~~comprising~~ wherein the semiconductor chip has flip-chip contacts which are connected via wiring lines to the contact pads, and via wiring lines on the upper side and through contacts to the underside of the wiring substrate, and also via wiring lines on the underside of the wiring substrate to external contact areas, the external contact areas having the external contacts.

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17. (Currently Amended) The base semiconductor component ~~as claimed in~~ of claim 16, ~~comprising where~~ wherein the external contacts have solder balls and are arranged on the underside of the wiring substrate in a matrix.

18. (Currently Amended) The base semiconductor component ~~as claimed in~~ of claim 15, ~~comprising where~~ wherein the interconnection film is ~~concurrently~~ arranged on ~~the~~ rear side of ~~a base~~ the semiconductor chip.

19. (Currently Amended) The base semiconductor component ~~as claimed in one of~~ of claim 15, ~~further comprising~~ comprising a supporting plate arranged between the interconnection film and the semiconductor chip.

20. (Currently Amended) ~~The~~ base semiconductor component ~~as claimed in~~ of claim 15, ~~comprising where~~ wherein the base semiconductor component and the stacked semiconductor component are electrically connected via the stack contact areas of the interconnection film.

21. (Currently Amended) The base semiconductor component ~~as claimed in~~ of claim 15, ~~comprising where~~ wherein the interconnection film has a plurality of mutually insulated layers with conductor tracks.

22. (Currently Amended) The base semiconductor component ~~as claimed in~~ of claim 15, ~~comprising where~~ wherein the semiconductor chip of the base semiconductor component is embedded in a plastics composition.

23. (Currently Amended) The base semiconductor component ~~as claimed in~~ of claim 15, ~~comprising where~~ wherein the semiconductor chip of the base semiconductor component is electrically connected to the contact pads via bonding wire connections.

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24. (Currently Amended) The base semiconductor component as claimed in claim 15, ~~comprising wherein the connection locations between contact pads and conductor tracks of the interconnection film, in the edge regions of the wiring substrate, are embedded in a plastic covering.~~

25. (Currently Amended) A method for the production of a base semiconductor component comprising:

~~producing a stiff wiring carrier with a central semiconductor chip having an active upper side disposed on ~~an~~ an upper side of the wiring carrier, the wiring carrier having and contact pads in edge regions of the upper side; and ~~also~~ external contact areas on ~~an~~ an underside of the wiring carrier,~~ the external contact areas and the contact pads and also contact areas of an integrated circuit of the semiconductor chip being electrically connected to one another;

producing a deformable interconnection film with stack contact areas on its upper side, which have an arrangement pattern that is congruent with respect to an arrangement pattern of external contacts of a semiconductor component to be stacked, and with conductor tracks on its underside, which are connected to the stack contact areas and extend right into the edge regions of the ~~intermediate carrier~~ deformable interconnection film, the conductor tracks having an arrangement pattern that is congruent with respect to the arrangement pattern of the contact pads;

applying the interconnection film by its underside onto the wiring carrier with semiconductor chip; and

deforming the edge sides of the interconnection film with the conductor tracks being connected to the contact pads.

26. (Currently Amended) The method ~~as claimed in~~ of claim 25, ~~comprising wherein~~ further including, before the interconnection film is applied onto the wiring ~~substrate~~ carrier, applying a supporting plate onto the underside of the interconnection film.

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27. (Currently Amended) The method as claimed in claim 25, ~~comprising wherein further including,~~ before the interconnection film is applied, embedding the semiconductor chip in a plastics composition.

28. (Currently Amended) The method as claimed in claim 26, ~~comprising wherein further including,~~ after the conductor tracks have been connected to the contact pads, ~~embedding the connection locations are embedded in a plastic covering.~~

29. (Currently Amended) A semiconductor component stack having a base semiconductor component comprising:

a semiconductor chip arranged centrally on a stiff wiring substrate, ~~wherein an active upper side of the semiconductor chip faces toward the wiring substrate;~~

the wiring substrate has, in its edge regions, contact pads which are electrically connected to external contacts and at the same time to contact areas of the semiconductor chip and also to stack contact areas; and

the stack contact areas simultaneously form an upper side of the base semiconductor component and have an arrangement pattern corresponding to an arrangement pattern of external contacts of a semiconductor component to be stacked.

30. (Currently Amended) A base semiconductor component for a semiconductor component stack comprising:

a semiconductor chip arranged on a stiff wiring substrate, ~~wherein an active upper side of the semiconductor chip faces toward the wiring substrate,~~ the wiring substrate having contact

pads on its upper side in edge regions and external contacts of the base semiconductor component on its underside opposite to the semiconductor chip;

contact areas of an integrated circuit of the active upper side of the semiconductor chip and/or the external contacts together with the contact pads are electrically connected to one another via wiring lines and/or through contacts of the wiring substrate;

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a deformable interconnection film defines ~~the an~~ upper side of the base semiconductor component and has a freely accessible arrangement pattern of stack contact areas arranged congruently with respect to external contacts of a semiconductor component to be stacked;

the interconnection film is deformed in its edge regions toward the contact pads of the wiring substrate; and

the stack contact areas are electrically connected to the contact pads of the wiring substrate via conductor tracks of the interconnection film, and

wherein the interconnection film is arranged ~~concomitantly on the rear side of a base~~ the semiconductor chip, and with a supporting plate is arranged between the interconnection film and the semiconductor chip.

31. (Currently Amended) ~~The base semiconductor component as claimed in of claim 30, comprising electrically connecting wherein~~ the base semiconductor component and the stacked semiconductor component are electrically connected via the stack contact areas of the interconnection film.

32. (Currently Amended) The base semiconductor component ~~as claimed in of claim 31, comprising wherein~~ the interconnection film has a plurality of mutually insulated layers with conductor tracks.

33. (Currently Amended) The base semiconductor component ~~as claimed in of claim 32, comprising wherein~~ the semiconductor chip of the base semiconductor component is embedded in a plastics composition.

34. (Currently Amended) A base semiconductor component for a semiconductor component stack comprising:

means for providing a semiconductor chip arranged centrally on a stiff wiring substrate wherein an active upper side of the semiconductor chip faces toward the wiring substrate;

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means for providing contact pads in edge regions of the wiring substrate, which are electrically connected to external contacts and at the same time to contact areas of the semiconductor chip and also to stack contact areas; and

the stack contact areas simultaneously form an upper side of the base semiconductor component and have an arrangement pattern corresponding to an arrangement pattern of external contacts of a semiconductor component to be stacked.